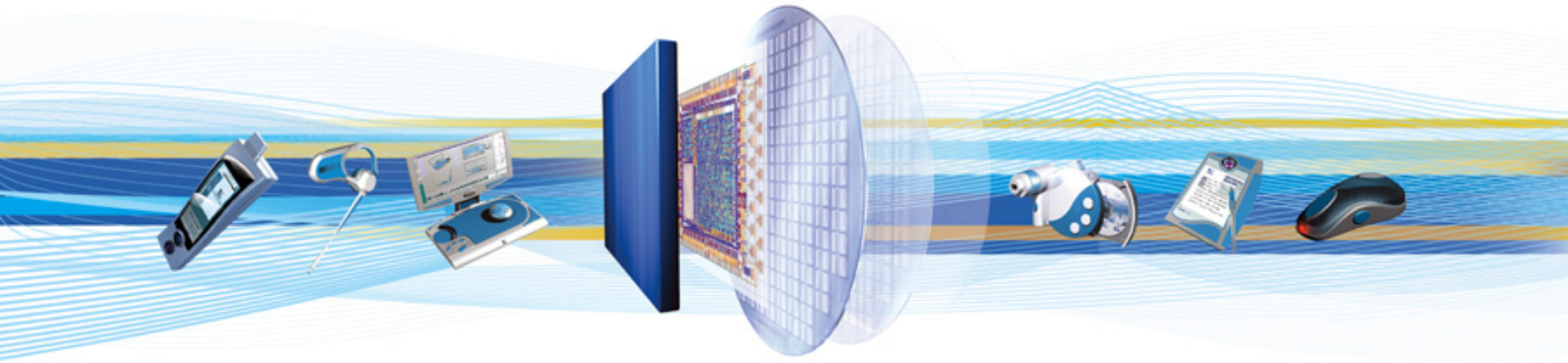
BlueCore®

Headset Configuration Tool

User Guide

Issue 1



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Document History

Revision	Date	History
1	15 JUL 10	Original publication of this document.

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1 Introduction

This document describes the Configuration Tool for CSR's Bluetooth Headset applications. It is a generic description of the Configuration Tool and specific details may vary slightly between particular versions of the Configuration Tool.

Note:

This document should be read in conjunction with the specific *Headset Configuration PS Key Bit Field* document for the relevant application(s).

The Headset Configuration Tool is a user-friendly tool developed to configure Headset applications.

To allow manufacturers to distinguish their final product in the market place the Headset software is designed with a highly configurable HMI.

Developers can readily:

- Define PIO functionality to suit their hardware design.
- Associate device control with different button configurations.
- Define unique LED patterns and audio tones to indicate:
  - User actions
  - System states
  - System events

1.1 General

The Headset Configuration Tool is designed to simplify the customisation of the supported Headset configurable HMI settings.

PS Key configuration settings can be read into the Headset Configuration Tool from the default options, a previously saved user-generated `.psr` file or a connected device.

Default configurations are provided for two, three and four-button headset designs.

When the Headset Configuration Tool is opened, developers can select the button configuration that matches their hardware design and suitable default settings for the selected hardware design are loaded into the Headset Configuration Tool application.

Note:

The default button assignment, functionality and user events can then be viewed in the **User Events** tab.

The default settings provide a viable HMI that can be used as supplied or can be customised, by the manufacturer, using the Headset Configuration Tool **Advanced** option in the **View** menu.

Settings defined in the Headset Configuration Tool can be saved as a `.psr` file or downloaded directly to the Persistent Store of a connected device.

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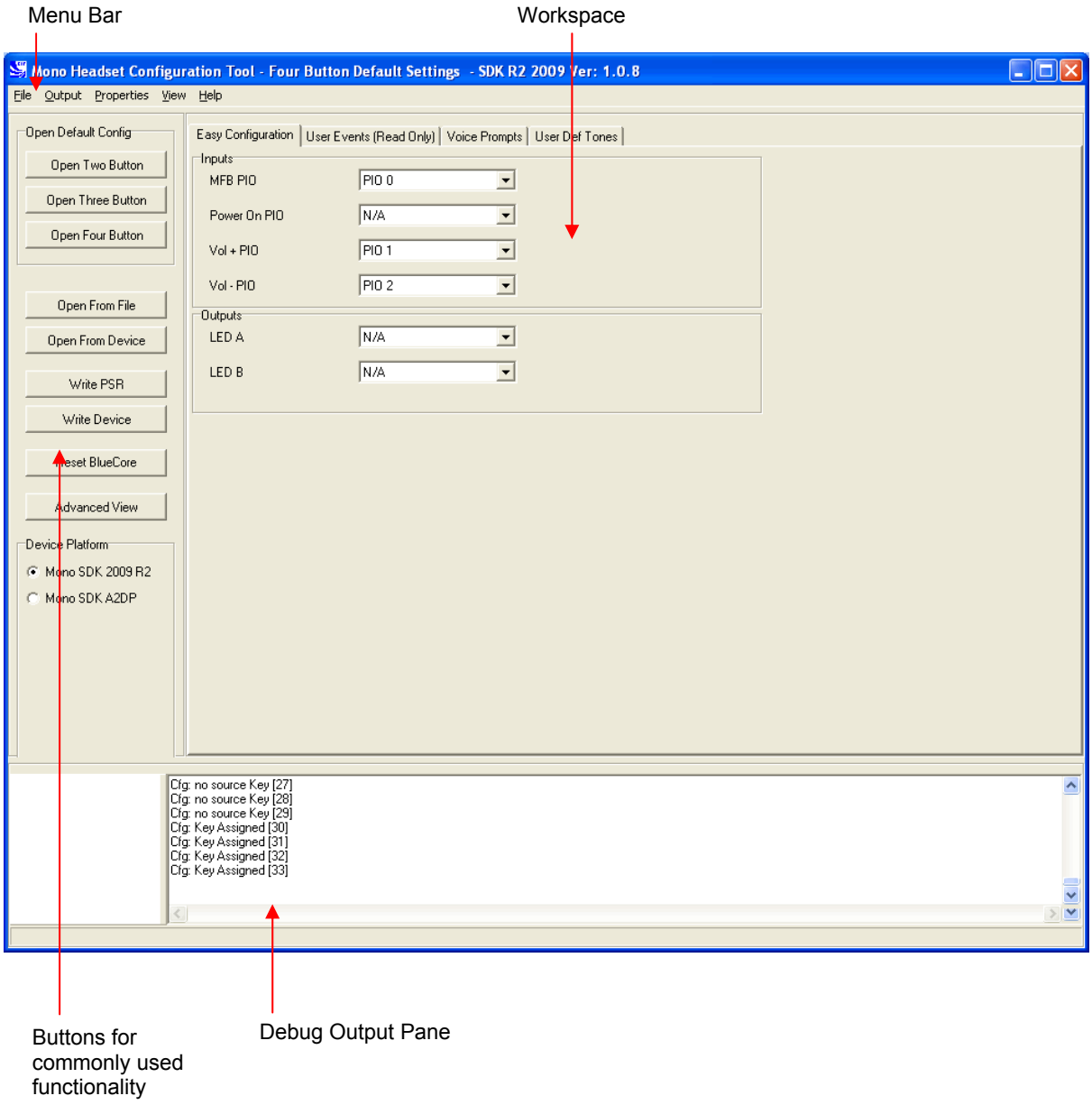
2 Description of Headset Configuration Tool Workspace

The Headset Configuration Tool supports two modes of operation:

- **Simple mode:** Allows configuration values for default two, three and four-button headsets to be loaded into the Headset Configuration Tool, and the input and output PIOs corresponding to the hardware design to be assigned.
- **Advanced mode:** Allows developers access to the full range of configuration parameters supported by the various Headset software platforms.

The configuration parameters in the Headset Configuration Tool can be written to a `.psr` file or downloaded to a connected device in both modes.



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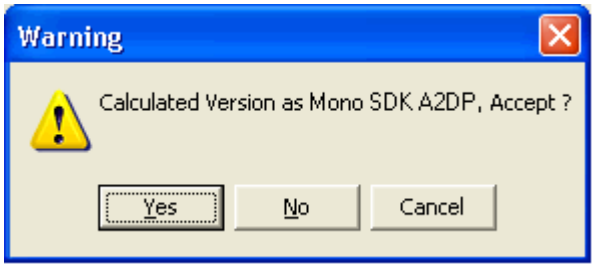
2.1 Device Platform

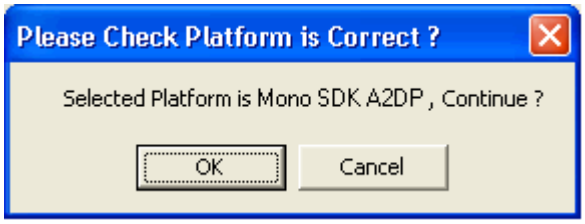
On starting, the configuration tool **Device Platform** defaults to one of the **Device Platform** options for the specific Configuration Tool. In most versions other device platform options can be selected using radio buttons e.g:

When a file is loaded from disk the application attempts to determine the appropriate Device Platform. The automated selection will not always be correct. If incorrect, select **No** from the **Warning** window that appears e.g:



Selecting **No** forces the software to use the platform selected in the **Device Platform** options.

When a configuration is read from a device it is not possible to determine what device platform it has been read from, therefore a query window is shown which displays the currently selected platform, e.g:



If the platform displayed is correct click **OK**. If it is not correct click **Cancel** and change the selected **Device Platform** option before re-reading from the device.

Note:

It is possible to force the application to read/write a configuration intended for one platform to another. However, PS Key information may be lost and the Headset is unlikely to work as expected. It is therefore important to check that the application is configured to the correct device platform.

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2.2 Functionality

The full functionality provided by the Headset Configuration Tool is accessed through menus in the menu bar. Buttons are also provided to support the most commonly required functions.

This section describes the menus, menu items and their functions.

2.2.1 File Menu

The **File** menu contains:

- **Open from Device:** Loads the configuration settings on a connected device into the Headset Configuration Tool and displays them in the advanced view.

  Note:

  A suitable connection to the device is required and the appropriate transport method must be set using **Transport** from the **Properties** menu. See section 2.2.3.

- **Open from Default:** Loads configuration parameters for the default button options listed in a submenu:
  - **Open Two Button:** Loads default configuration settings for a two-button headset into the Headset Configuration Tool.
  - **Open Three Button:** Loads default configuration settings for a three-button headset into the Headset Configuration Tool.
  - **Open Four Button:** Loads default configuration settings for a four-button headset into the Headset Configuration Tool.
- **Open from PSR file:** Loads configuration settings from a `.psr` file. An **Open** window allows the user to browse to a location and select the `.psr` file to be used.
- **Exit:** Closes the Headset Configuration Tool application.

  Note:

  Exit does not automatically save changes made to values in the Headset Configuration Tool.

Buttons displayed on the left of the Headset Configuration Tool application window also provide **Open from Default**, **Open from File** and **Open from Device** functionality.

2.2.2 Output Menu

The **Output** menu contains:

- **Write PSR File:** Allows the currently displayed settings to be saved as a `.psr` file.

  Note:

  A **Save As** window opens. Select the location to save the file and enter a filename then click **Save** to write the `.psr` file to the selected location.

- **Write to Device:** Downloads the currently displayed settings to a connected device.

  Note:

  A suitable connection to the device is required and the appropriate transport method must be set using Transport from the **Properties** menu. See section 2.2.3.

Buttons displayed on the left of the Headset Configuration Tool application window also provide **Write PSR** and **Write Device** functionality.

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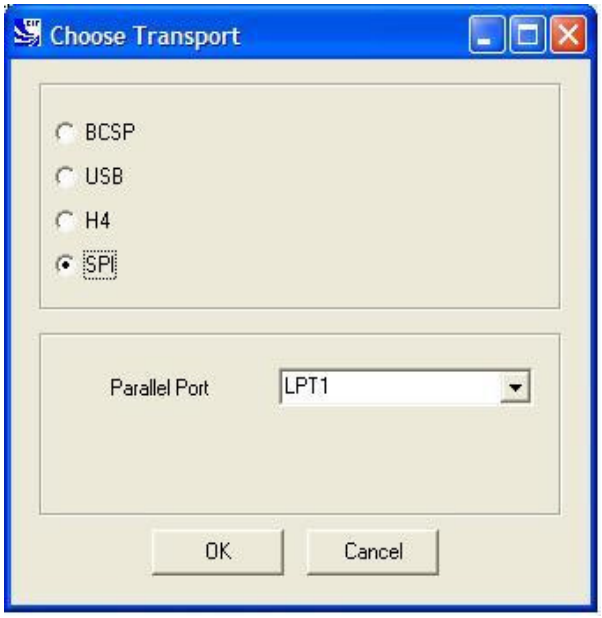
2.2.3 Properties Menu

The **Properties** menu contains:

- **Transport:** Allows the transport protocol used to communicate with a connected BlueCore device to be defined.

  Selecting **Transport** opens a **Choose Transport** window:



Note:

The application's default transport as shipped is SPI, Parallel Port LPT1. If the Transport method is changed, the newly applied transport method is retained until manually changed.

2.2.4 View Menu

The **View** menu contains:

- **Advanced:** Select this option to display the additional tabs available for advanced configuration.

The advanced configuration tabs can also be accessed using the **Advanced View** button.

2.2.5 Help Menu

The **Help** menu contains:

- **About:** Displays version information about the Headset Configuration Tool.

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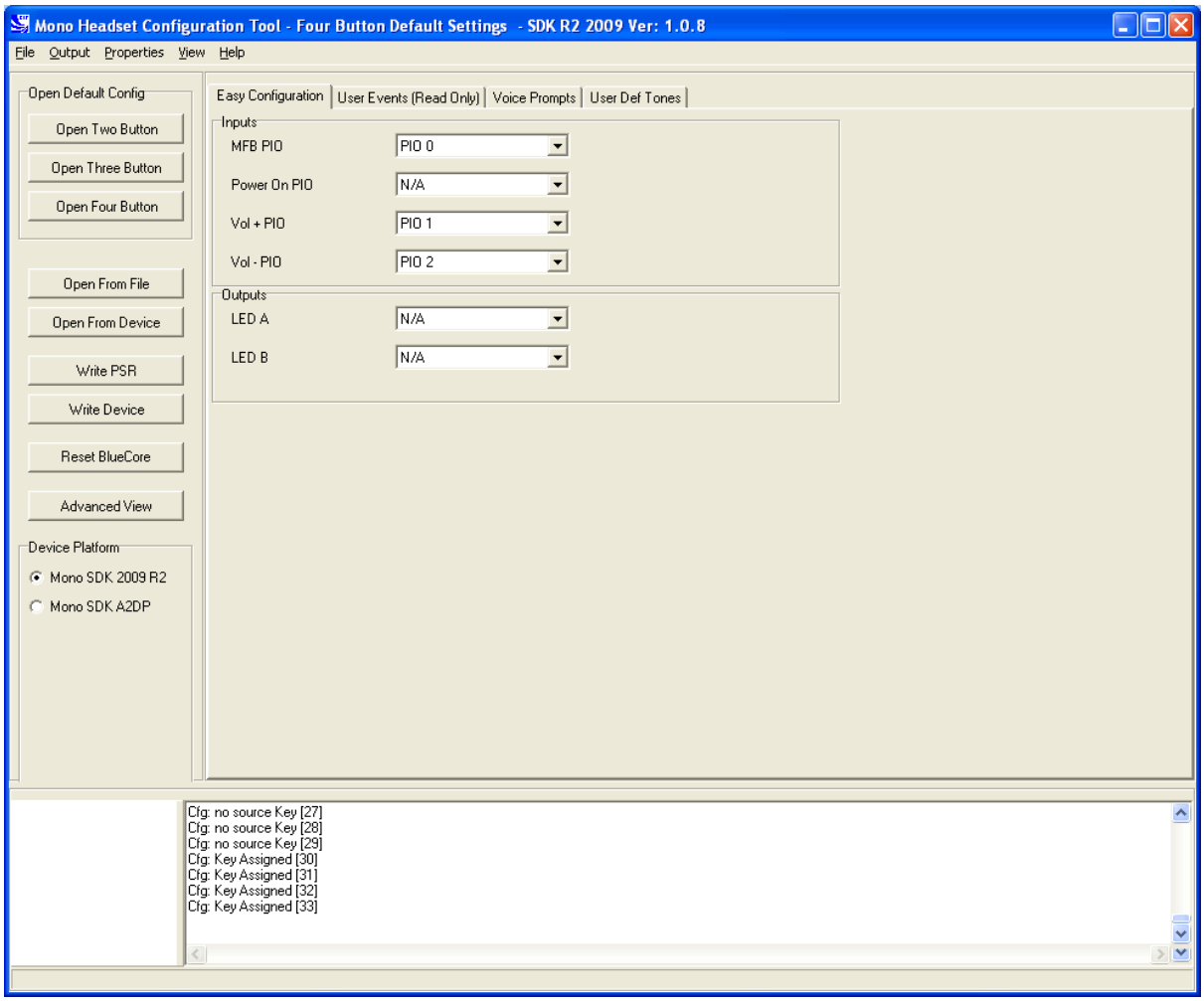
3 Opening a Default Configuration

When the Headset Configuration Tool is opened for the first time, a simple view of the application is displayed.

Note:

Subsequently the Headset Configuration Tool opens in the simple or advanced view depending on the active mode when the application is closed.

To open a default configuration for a two, three or four-button device select the required option button on the left of the Configuration Tool screen. The default settings are loaded into the Headset Configuration Tool and displayed in the simple view e.g:



The simple view provides access to a subset of the configuration parameters that allow engineers to set output and input PIOs to match their hardware design and to select the device platform.

A view-only **User Events** tab allows the engineer to see details of the user event configuration. To adjust these or other configuration settings click the **Advanced View** button.

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4 Advanced Configuration Parameters

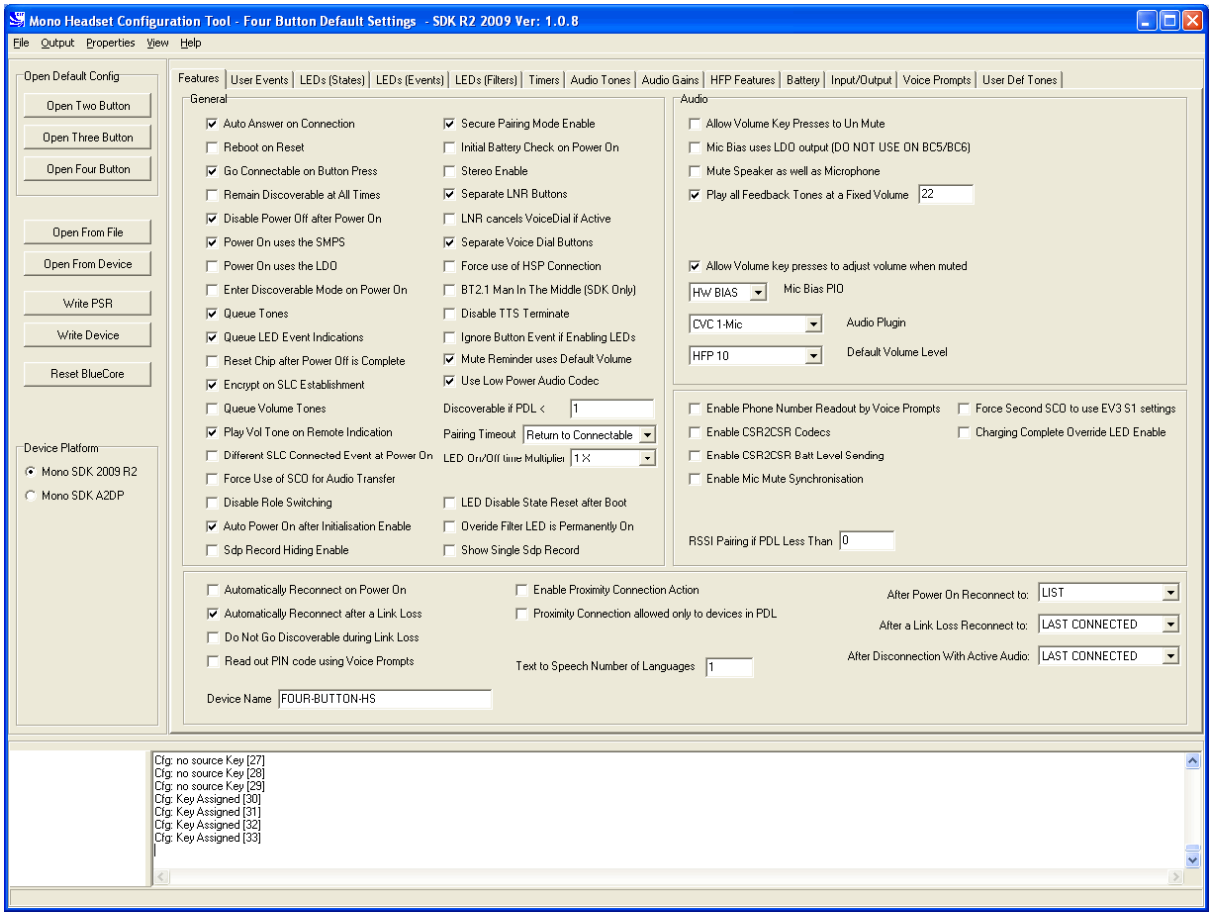
To access the full range of configuration options click the **Advanced View** button or select **Advanced** from the **View** menu.

The advanced view includes tabs that group related configuration parameters and provide a user-friendly interface. When set as required, parameters configured in the Headset Configuration Tool can be written to a `.psr` file or downloaded directly to a connected device.

The parameters set in the Headset Configuration Tool tabs map to PS Keys that control the Headset software's HMI configuration. The PS Keys and the parameters they hold are described in the *Headset SDK Configuration PS Key Bit Fields* document for the appropriate SDK.

4.1 Features Tab

The **Features** tab appearance varies according to the **Device Platform** chosen as different platform types have different feature enable bits. The feature options chosen in this tab create the PSKEY_USR15.


Mono Headset Configuration Tool - Four Button Default Settings - SDK R2 2009 Ver: 1.0.8
File Output Properties View Help
Open Default Config
Open Two Button
Open Three Button
Open Four Button
Open From File
Open From Device
Write PSR
Write Device
Reset BlueCore
Device Platform
Mono SDK 2009 R2
Mono SDK A2DP
Features User Events LEDs (States) LEDs (Events) LEDs (Filters) Timers Audio Tones Audio Gains HFP Features Battery Input/Output Voice Prompts User Def Tones
General
Auto Answer on Connection
Reboot on Reset
Go Connectable on Button Press
Remain Discoverable at All Times
Disable Power Off after Power On
Power On uses the SMPS
Power On uses the LDO
Enter Discoverable Mode on Power On
Queue Tones
Queue LED Event Indications
Reset Chip after Power Off is Complete
Encrypt on SLC Establishment
Queue Volume Tones
Play Vol Tone on Remote Indication
Different SLC Connected Event at Power On
Force Use of SCO for Audio Transfer
Disable Role Switching
Auto Power On after Initialisation Enable
Sdp Record Hiding Enable
Secure Pairing Mode Enable
Initial Battery Check on Power On
Stereo Enable
Separate LNR Buttons
LNR cancels VoiceDial if Active
Separate Voice Dial Buttons
Force use of HSP Connection
BT2.1 Man In The Middle (SDK Only)
Disable TTS Terminate
Ignore Button Event if Enabling LEDs
Mute Reminder uses Default Volume
Use Low Power Audio Codec
Discoverable if PDL <
Pairing Timeout
LED On/Off time Multiplier
LED Disable State Reset after Boot
Overide Filter LED is Permanently On
Show Single Sdp Record
Audio
Allow Volume Key Presses to Un Mute
Mic Bias uses LDO output (DO NOT USE ON BC5/BC6)
Mute Speaker as well as Microphone
Play all Feedback Tones at a Fixed Volume
Allow Volume key presses to adjust volume when muted
Mic Bias PIO
Audio Plugin
Default Volume Level
Enable Phone Number Readout by Voice Prompts
Enable CSR2CSR Codecs
Enable CSR2CSR Batt Level Sending
Enable Mic Mute Synchronisation
Force Second SCO to use EV3 S1 settings
Charging Complete Override LED Enable
RSSI Pairing if PDL Less Than
Automatically Reconnect on Power On
Automatically Reconnect after a Link Loss
Do Not Go Discoverable during Link Loss
Read out PIN code using Voice Prompts
Enable Proximity Connection Action
Proximity Connection allowed only to devices in PDL
Text to Speech Number of Languages
After Power On Reconnect to:
After a Link Loss Reconnect to:
After Disconnection With Active Audio:
Device Name
Cfg: no source Key [27]
Cfg: no source Key [28]
Cfg: no source Key [29]
Cfg: Key Assigned [30]
Cfg: Key Assigned [31]
Cfg: Key Assigned [32]
Cfg: Key Assigned [33]

See the appropriate *Headset Configuration PS Key Bit Fields* document.

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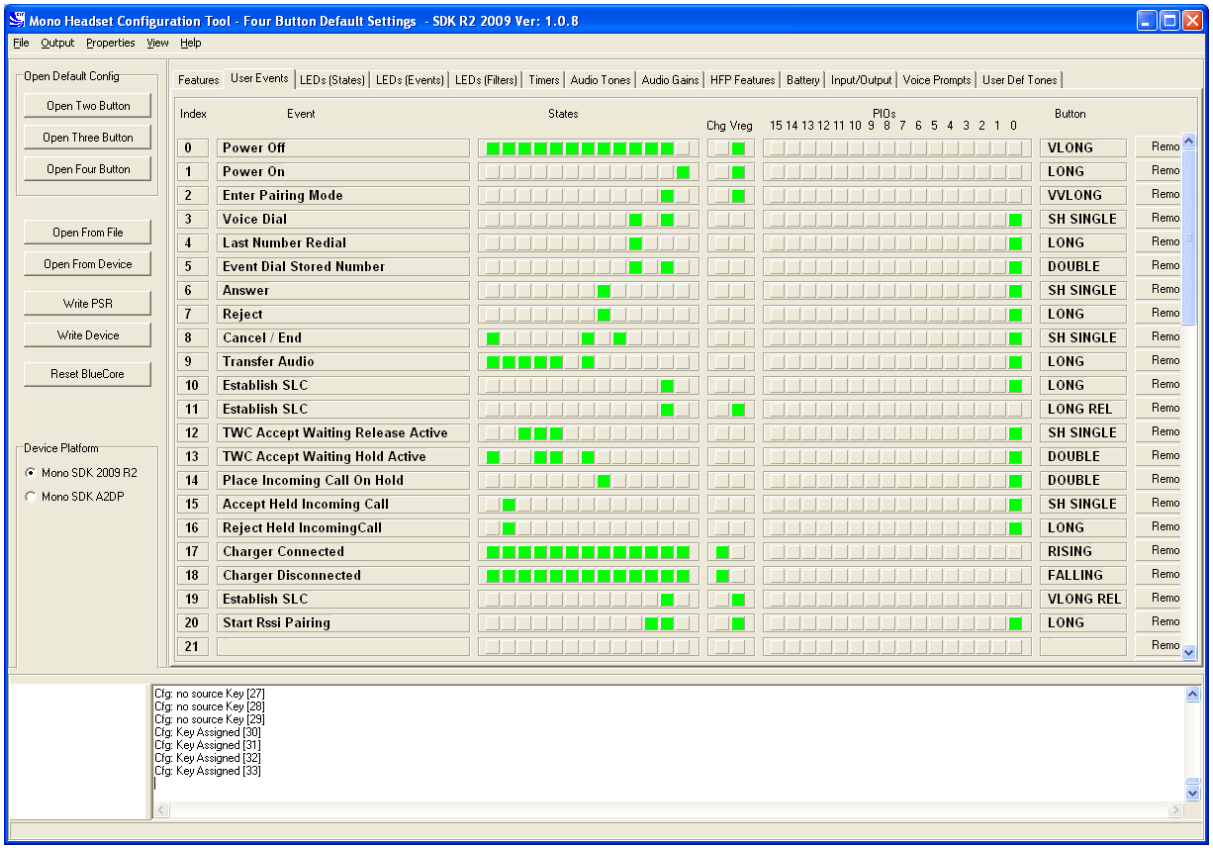
4.2 User Events Tab

The **User Events** tab allows configuration of the Headset button presses which generates PSKEY_USR23 and PSKEY_USR24.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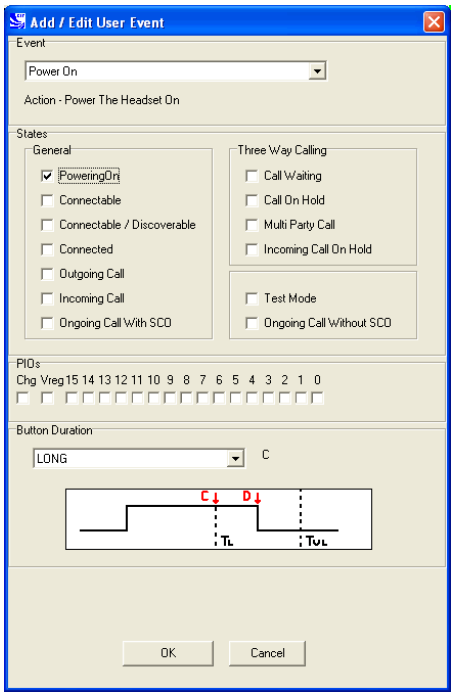
Mono SDK 2009 R2
Mono SDK A2DP
Features User Events LEDs (States) LEDs (Events) LEDs (Filters) Timers Audio Tones Audio Gains HFP Features Battery Input/Output Voice Prompts User Def Tones
Index Event States Chg Vreg PIOs 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 Button
0 Power Off VLONG
1 Power On LONG
2 Enter Pairing Mode VVLONG
3 Voice Dial SH SINGLE
4 Last Number Redial LONG
5 Event Dial Stored Number DOUBLE
6 Answer SH SINGLE
7 Reject LONG
8 Cancel / End SH SINGLE
9 Transfer Audio LONG
10 Establish SLC LONG
11 Establish SLC LONG REL
12 TWC Accept Waiting Release Active SH SINGLE
13 TWC Accept Waiting Hold Active DOUBLE
14 Place Incoming Call On Hold DOUBLE
15 Accept Held Incoming Call SH SINGLE
16 Reject Held IncomingCall LONG
17 Charger Connected RISING
18 Charger Disconnected FALLING
19 Establish SLC VLONG REL
20 Start Rssi Pairing LONG
21
Cfg: no source Key [27]
Cfg: no source Key [28]
Cfg: no source Key [29]
Cfg: Key Assigned [30]
Cfg: Key Assigned [31]
Cfg: Key Assigned [32]
Cfg: Key Assigned [33]

To add or edit an event, click anywhere on the line of the required **Index** to open the **Add/Edit User Event** window.

The window is used to set:

- The button press PIO (or PIO sequence for multiple button presses)
- The duration of the button press
- The Headset states in which the button press is enabled

See the appropriate *Headset Configuration PS Key Bit Fields* document.



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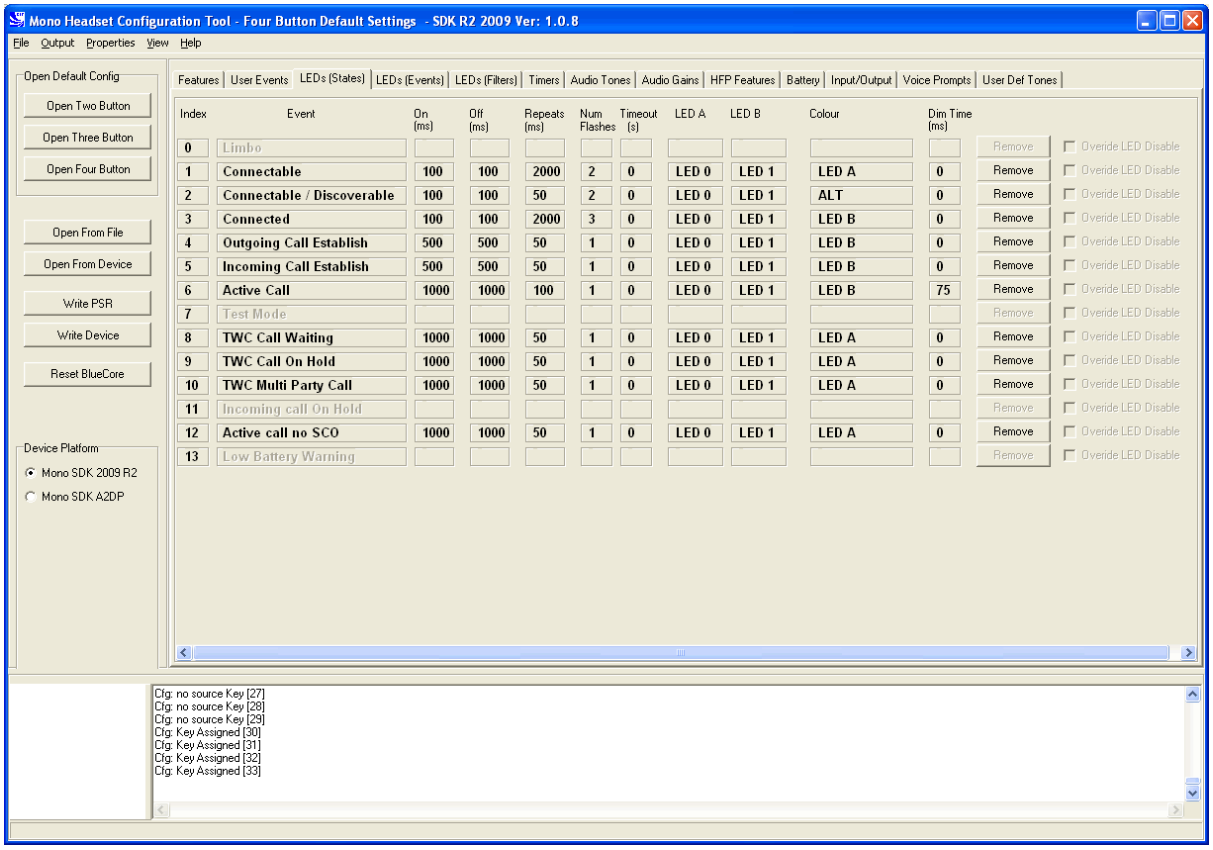
4.3 LEDs (States) Tab

The **LEDs (States)** tab allows configuration of the Headset LED flashing patterns that are shown on the Headset LEDs when the Headset is in a particular operating state.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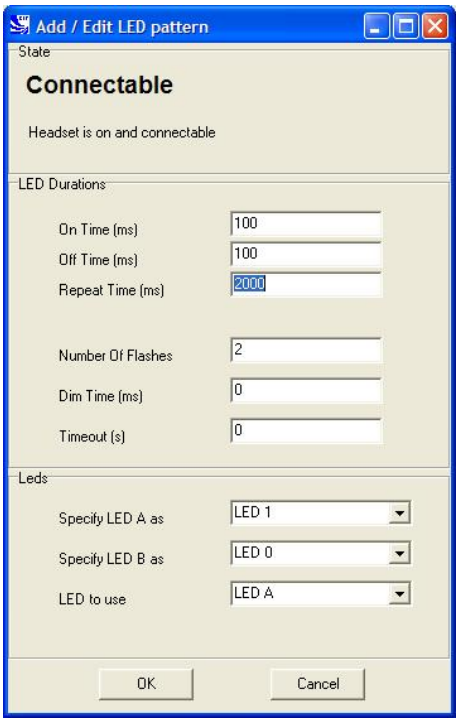
Mono SDK A2DP
Features | User Events | LEDs (States) | LEDs (Events) | LEDs (Filters) | Timers | Audio Tones | Audio Gains | HFP Features | Battery | Input/Output | Voice Prompts | User Def Tones
Index Event On (ms) Off (ms) Repeats (ms) Num Flashes Timeout (s) LED A LED B Colour Dim Time (ms)
0 Limbo
1 Connectable 100 100 2000 2 0 LED 0 LED 1 LED A 0
2 Connectable / Discoverable 100 100 50 2 0 LED 0 LED 1 ALT 0
3 Connected 100 100 2000 3 0 LED 0 LED 1 LED B 0
4 Outgoing Call Establish 500 500 50 1 0 LED 0 LED 1 LED B 0
5 Incoming Call Establish 500 500 50 1 0 LED 0 LED 1 LED B 0
6 Active Call 1000 1000 100 1 0 LED 0 LED 1 LED B 75
7 Test Mode
8 TWC Call Waiting 1000 1000 50 1 0 LED 0 LED 1 LED A 0
9 TWC Call On Hold 1000 1000 50 1 0 LED 0 LED 1 LED A 0
10 TWC Multi Party Call 1000 1000 50 1 0 LED 0 LED 1 LED A 0
11 Incoming call On Hold
12 Active call no SCO 1000 1000 50 1 0 LED 0 LED 1 LED A 0
13 Low Battery Warning
Remove
Override LED Disable
Cfg: no source Key [27]
Cfg: no source Key [28]
Cfg: no source Key [29]
Cfg: Key Assigned [30]
Cfg: Key Assigned [31]
Cfg: Key Assigned [32]
Cfg: Key Assigned [33]

To add or edit an LED pattern, click anywhere on the line of the required **Index** to open the **Add/Edit LED pattern** window.

Use the window to configure a flashing sequence that is shown when the Headset is in that particular operating state.

See the appropriate *Headset Configuration PS Key Bit Fields* document.



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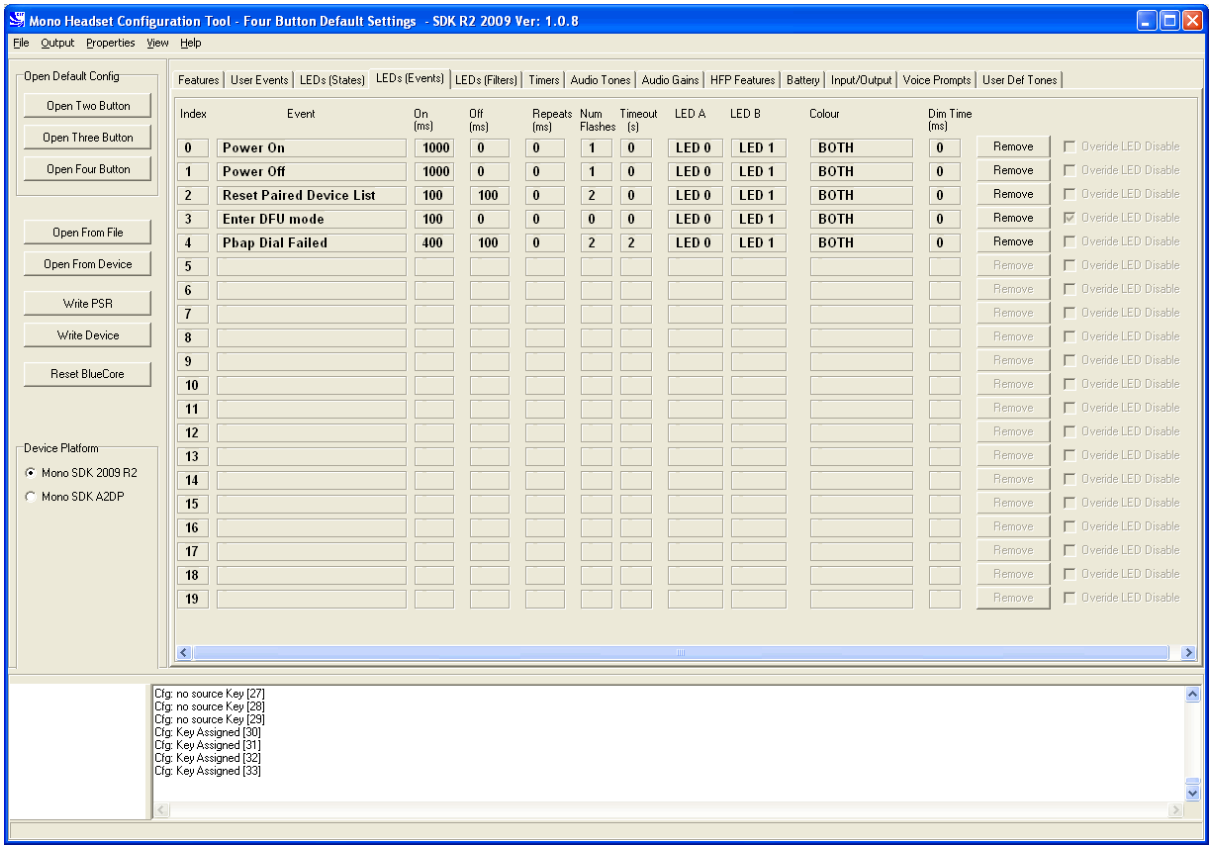
4.4 LEDs (Events) Tab

The **LEDs (Events)** tab allows configuration of the Headset LED flashing patterns that are shown when triggered by Headset generated events.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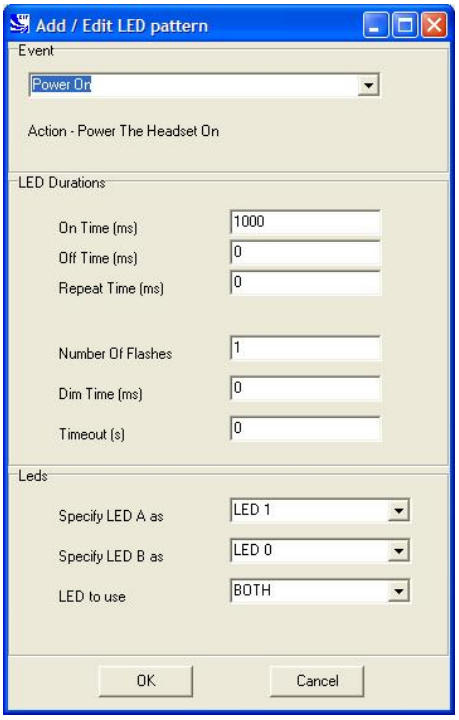
Index Event On (ms) Off (ms) Repeats (ms) Num Flashes Timeout (s) LED A LED B Colour Dim Time (ms)
0 Power On 1000 0 0 1 0 LED 0 LED 1 BOTH 0 Remove
1 Power Off 1000 0 0 1 0 LED 0 LED 1 BOTH 0 Remove
2 Reset Paired Device List 100 100 0 2 0 LED 0 LED 1 BOTH 0 Remove
3 Enter DFU mode 100 0 0 0 0 LED 0 LED 1 BOTH 0 Remove
4 Pbap Dial Failed 400 100 0 2 2 LED 0 LED 1 BOTH 0 Remove
Override LED Disable
Cfg: no source Key [27]
Cfg: no source Key [28]
Cfg: no source Key [29]
Cfg: Key Assigned [30]
Cfg: Key Assigned [31]
Cfg: Key Assigned [32]
Cfg: Key Assigned [33]

To add or edit an LED pattern, click anywhere on the line of the required **Index** to open the **Add/Edit LED pattern** window.

Use the window to configure a flashing sequence that is shown when the Headset generated event is triggered.

See the appropriate *Headset Configuration PS Key Bit Fields* document.



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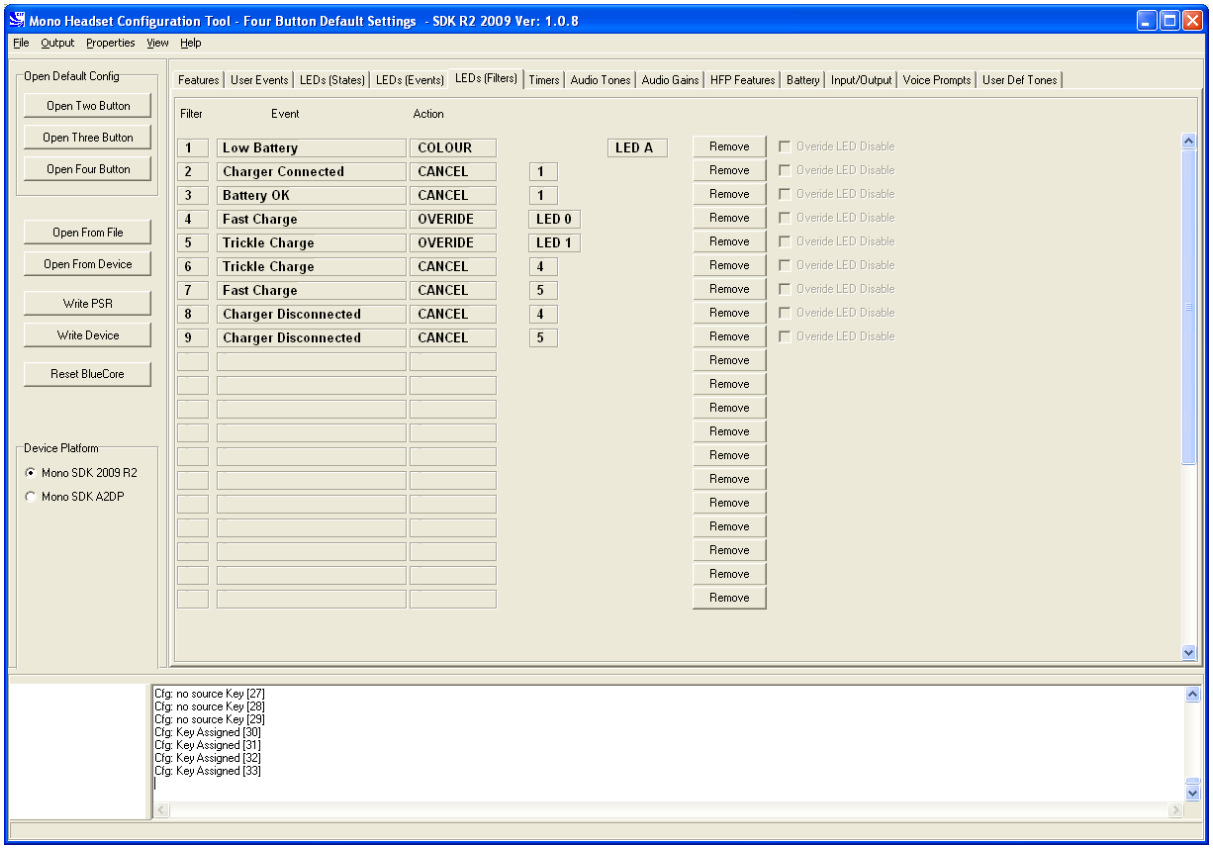
4.5 LEDs (Filters) Tab

The **LEDs (Filters)** tab allows configuration of the LED filters which can be used to change the behaviour of other LED flashing patterns such as those generated from LED states or events.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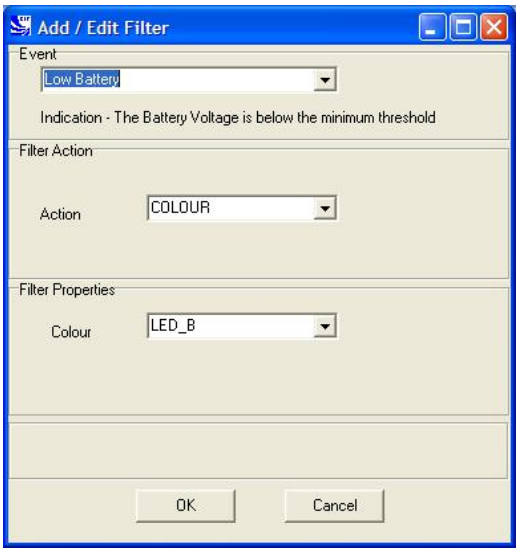
Features User Events LEDs (States) LEDs (Events) LEDs (Filters) Timers Audio Tones Audio Gains HFP Features Battery Input/Output Voice Prompts User Def Tones
Filter Event Action
1 Low Battery COLOUR LED A
2 Charger Connected CANCEL 1
3 Battery OK CANCEL 1
4 Fast Charge OVERIDE LED 0
5 Trickle Charge OVERIDE LED 1
6 Trickle Charge CANCEL 4
7 Fast Charge CANCEL 5
8 Charger Disconnected CANCEL 4
9 Charger Disconnected CANCEL 5
Remove
Override LED Disable
Cfg: no source Key [27]
Cfg: no source Key [28]
Cfg: no source Key [29]
Cfg: Key Assigned [30]
Cfg: Key Assigned [31]
Cfg: Key Assigned [32]
Cfg: Key Assigned [33]

To add or edit an LED filter, click anywhere on the line of the required **Index** to open the **Add/Edit Filter** window.

Use the window to configure a number of different filter types. The window options change according to the filter action chosen as some filters need more configuration than others.

See the appropriate *Headset Configuration PS Key Bit Fields* document.



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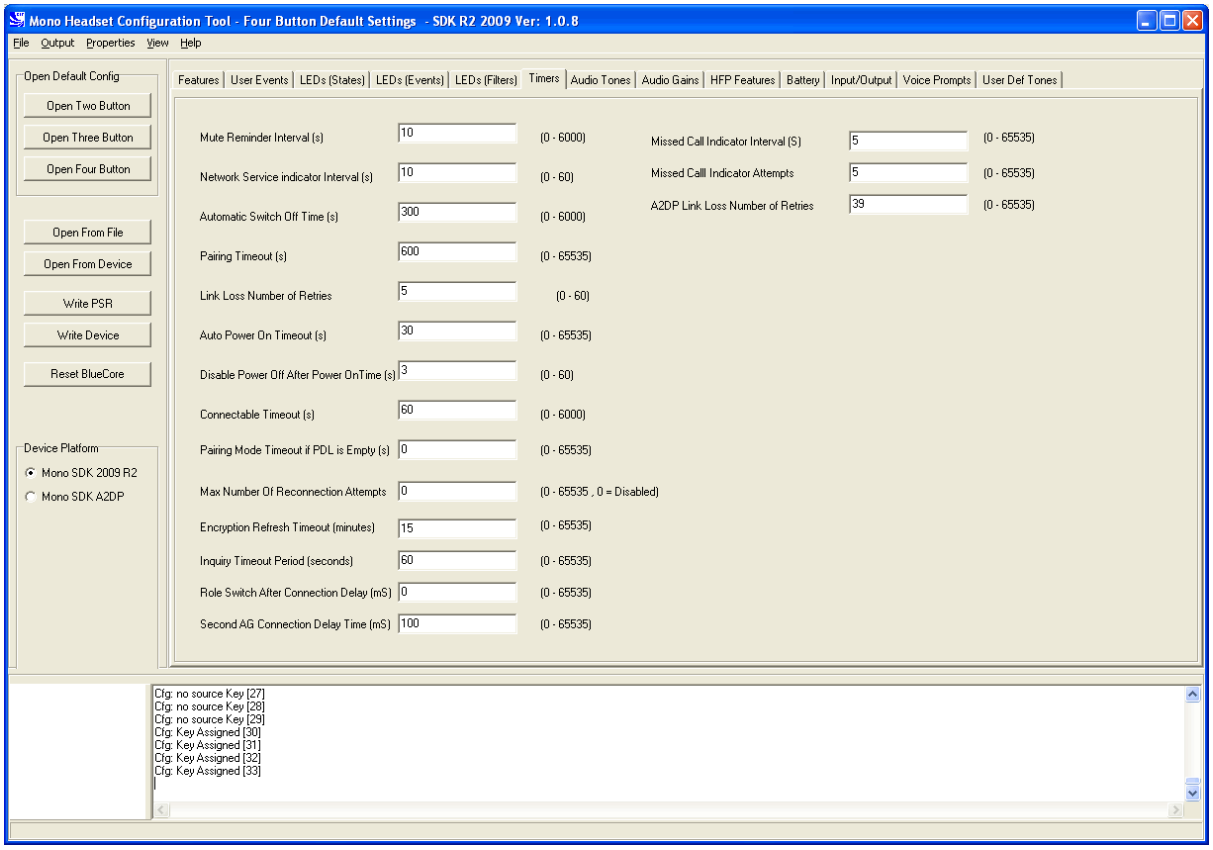
4.6 Timers Tab

The **Timers** tab allows configuration of the various Headset timers. The configuration on this tab generates PSKEY_USR6.


Mono Headset Configuration Tool - Four Button Default Settings - SDK R2 2009 Ver: 1.0.8
File Output Properties View Help
Open Default Config
Open Two Button
Open Three Button
Open Four Button
Open From File
Open From Device
Write PSR
Write Device
Reset BlueCore
Device Platform
Mono SDK 2009 R2
Mono SDK A2DP
Features User Events LEDs (States) LEDs (Events) LEDs (Filters) Timers Audio Tones Audio Gains HFP Features Battery Input/Output Voice Prompts User Def Tones
Mute Reminder Interval (s) 10 (0 - 6000)
Network Service indicator Interval (s) 10 (0 - 60)
Automatic Switch Off Time (s) 300 (0 - 6000)
Pairing Timeout (s) 600 (0 - 65535)
Link Loss Number of Retries 5 (0 - 60)
Auto Power On Timeout (s) 30 (0 - 65535)
Disable Power Off After Power OnTime (s) 3 (0 - 60)
Connectable Timeout (s) 60 (0 - 6000)
Pairing Mode Timeout if PDL is Empty (s) 0 (0 - 65535)
Max Number Of Reconnection Attempts 0 (0 - 65535 , 0 = Disabled)
Encryption Refresh Timeout (minutes) 15 (0 - 65535)
Inquiry Timeout Period (seconds) 60 (0 - 65535)
Role Switch After Connection Delay (mS) 0 (0 - 65535)
Second AG Connection Delay Time (mS) 100 (0 - 65535)
Missed Call Indicator Interval (S) 5 (0 - 65535)
Missed Calll Indicator Attempts 5 (0 - 65535)
A2DP Link Loss Number of Retries 39 (0 - 65535)
Cfg: no source Key [27]
Cfg: no source Key [28]
Cfg: no source Key [29]
Cfg: Key Assigned [30]
Cfg: Key Assigned [31]
Cfg: Key Assigned [32]
Cfg: Key Assigned [33]

Values for the timers are entered directly on this window. Not all timers use the same units of measure, it is important to check the units specified to the right of the text entry field to ensure the correct value is entered.

Note:

Not all variants of Headset have all of the timers shown in the screenshot and the window may appear different when a different operating platform is chosen.

See the appropriate *Headset Configuration PS Key Bit Fields* document.

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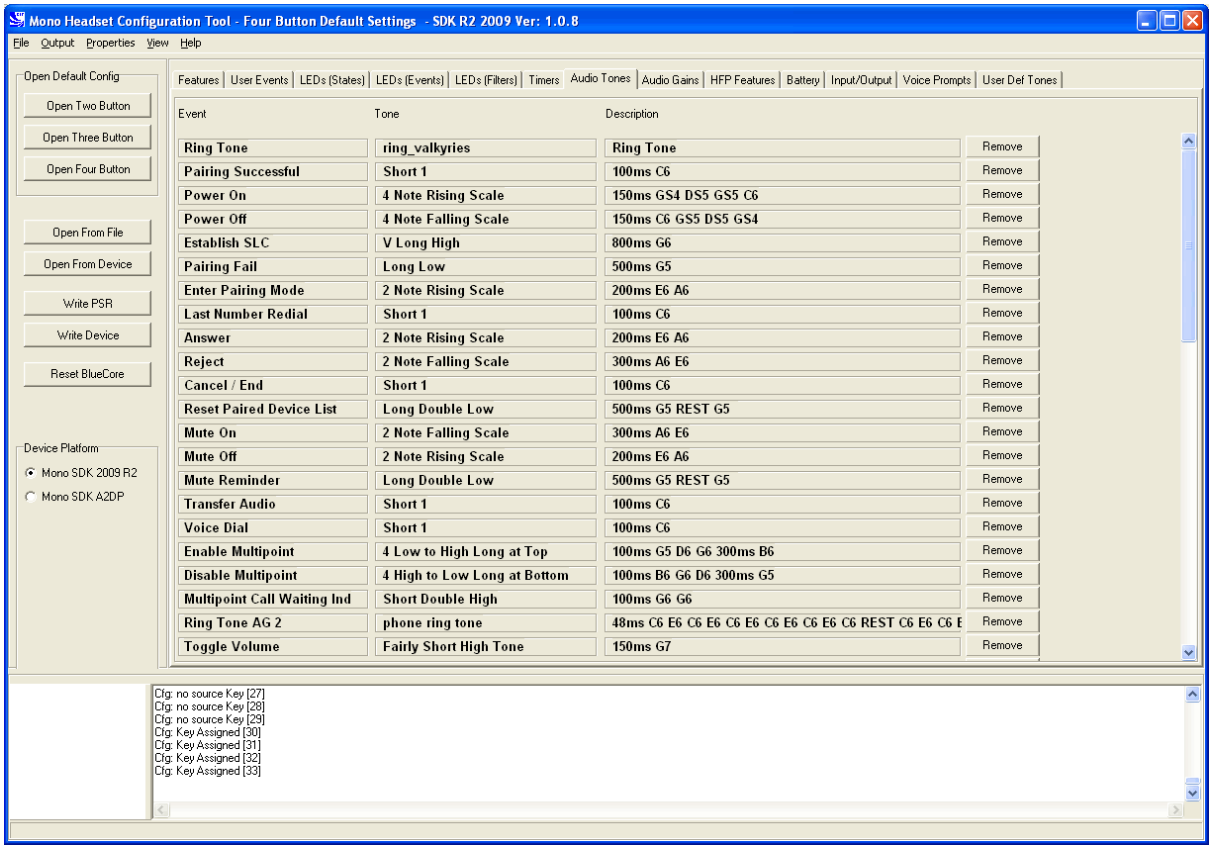
4.7 Audio Tones Tab

The **Audio Tones** tab allows the user to configure to have a tone played on a particular Headset event such as power on/off, incoming call ring tone and so on.


Mono Headset Configuration Tool - Four Button Default Settings - SDK R2 2009 Ver: 1.0.8
File Output Properties View Help
Open Default Config
Open Two Button
Open Three Button
Open Four Button
Open From File
Open From Device
Write PSR
Write Device
Reset BlueCore
Device Platform
Mono SDK 2009 R2
Mono SDK A2DP
Features User Events LEDs (States) LEDs (Events) LEDs (Filters) Timers Audio Tones Audio Gains HFP Features Battery Input/Output Voice Prompts User Def Tones
Event Tone Description
Ring Tone ring_valkyries Ring Tone Remove
Pairing Successful Short 1 100ms C6 Remove
Power On 4 Note Rising Scale 150ms GS4 DS5 GS5 C6 Remove
Power Off 4 Note Falling Scale 150ms C6 GS5 DS5 GS4 Remove
Establish SLC V Long High 800ms G6 Remove
Pairing Fail Long Low 500ms G5 Remove
Enter Pairing Mode 2 Note Rising Scale 200ms E6 A6 Remove
Last Number Redial Short 1 100ms C6 Remove
Answer 2 Note Rising Scale 200ms E6 A6 Remove
Reject 2 Note Falling Scale 300ms A6 E6 Remove
Cancel / End Short 1 100ms C6 Remove
Reset Paired Device List Long Double Low 500ms G5 REST G5 Remove
Mute On 2 Note Falling Scale 300ms A6 E6 Remove
Mute Off 2 Note Rising Scale 200ms E6 A6 Remove
Mute Reminder Long Double Low 500ms G5 REST G5 Remove
Transfer Audio Short 1 100ms C6 Remove
Voice Dial Short 1 100ms C6 Remove
Enable Multipoint 4 Low to High Long at Top 100ms G5 D6 G6 300ms B6 Remove
Disable Multipoint 4 High to Low Long at Bottom 100ms B6 G6 D6 300ms G5 Remove
Multipoint Call Waiting Ind Short Double High 100ms G6 G6 Remove
Ring Tone AG 2 phone ring tone 48ms C6 E6 C6 E6 C6 E6 C6 E6 C6 E6 C6 REST C6 E6 C6 E Remove
Toggle Volume Fairly Short High Tone 150ms G7 Remove
Cfg: no source Key [27]
Cfg: no source Key [28]
Cfg: no source Key [29]
Cfg: Key Assigned [30]
Cfg: Key Assigned [31]
Cfg: Key Assigned [32]
Cfg: Key Assigned [33]

To add or edit a tone, click anywhere on the line of the required **Index** to open the **Edit Tone Event** window.

Use the window to configure a tone to be played on a given event.

See the appropriate *Headset Configuration PS Key Bit Fields* document.

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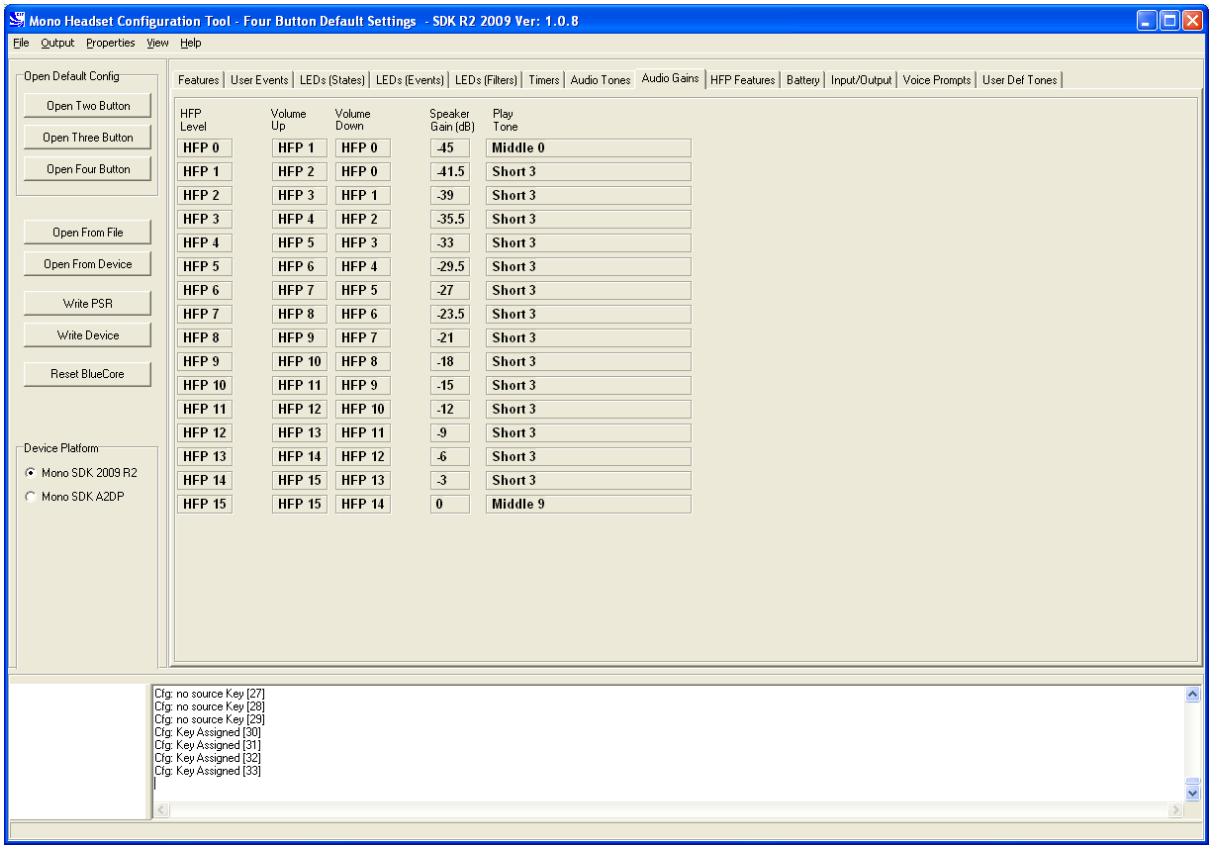
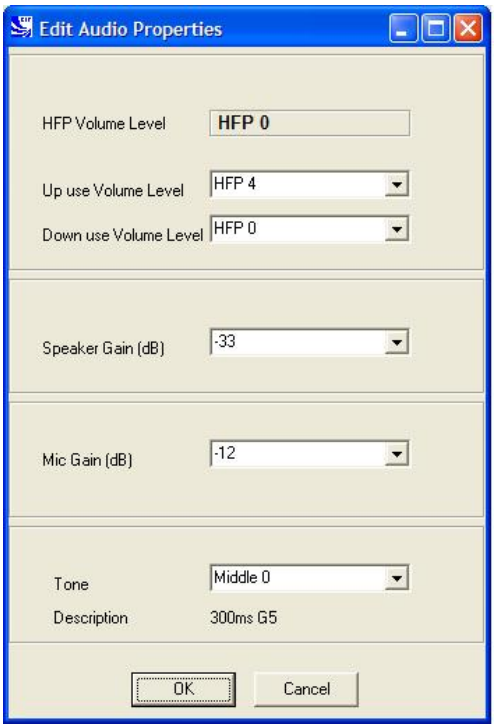
4.8 Audio Gains Tab

The **Audio Gains** tab allows the user to configure the volume of both the microphone and speaker. This creates the entry for PSKEY_USR16.


Mono Headset Configuration Tool - Four Button Default Settings - SDK R2 2009 Ver: 1.0.8
File Output Properties View Help
Open Default Config
Open Two Button
Open Three Button
Open Four Button
Open From File
Open From Device
Write PSR
Write Device
Reset BlueCore
Device Platform
Mono SDK 2009 R2
Mono SDK A2DP
Features | User Events | LEDs (States) | LEDs (Events) | LEDs (Filters) | Timers | Audio Tones | Audio Gains | HFP Features | Battery | Input/Output | Voice Prompts | User Def Tones
HFP Level | Volume Up | Volume Down | Speaker Gain (dB) | Play Tone
HFP 0 | HFP 1 | HFP 0 | -45 | Middle 0
HFP 1 | HFP 2 | HFP 0 | -41.5 | Short 3
HFP 2 | HFP 3 | HFP 1 | -39 | Short 3
HFP 3 | HFP 4 | HFP 2 | -35.5 | Short 3
HFP 4 | HFP 5 | HFP 3 | -33 | Short 3
HFP 5 | HFP 6 | HFP 4 | -29.5 | Short 3
HFP 6 | HFP 7 | HFP 5 | -27 | Short 3
HFP 7 | HFP 8 | HFP 6 | -23.5 | Short 3
HFP 8 | HFP 9 | HFP 7 | -21 | Short 3
HFP 9 | HFP 10 | HFP 8 | -18 | Short 3
HFP 10 | HFP 11 | HFP 9 | -15 | Short 3
HFP 11 | HFP 12 | HFP 10 | -12 | Short 3
HFP 12 | HFP 13 | HFP 11 | -9 | Short 3
HFP 13 | HFP 14 | HFP 12 | -6 | Short 3
HFP 14 | HFP 15 | HFP 13 | -3 | Short 3
HFP 15 | HFP 15 | HFP 14 | 0 | Middle 9
Cfg: no source Key [27]
Cfg: no source Key [28]
Cfg: no source Key [29]
Cfg: Key Assigned [30]
Cfg: Key Assigned [31]
Cfg: Key Assigned [32]
Cfg: Key Assigned [33]

To edit a volume table entry, click anywhere on the line of the required **Index** to open the **Edit Audio Properties** window.

See the appropriate *Headset Configuration PS Key Bit Fields* document.



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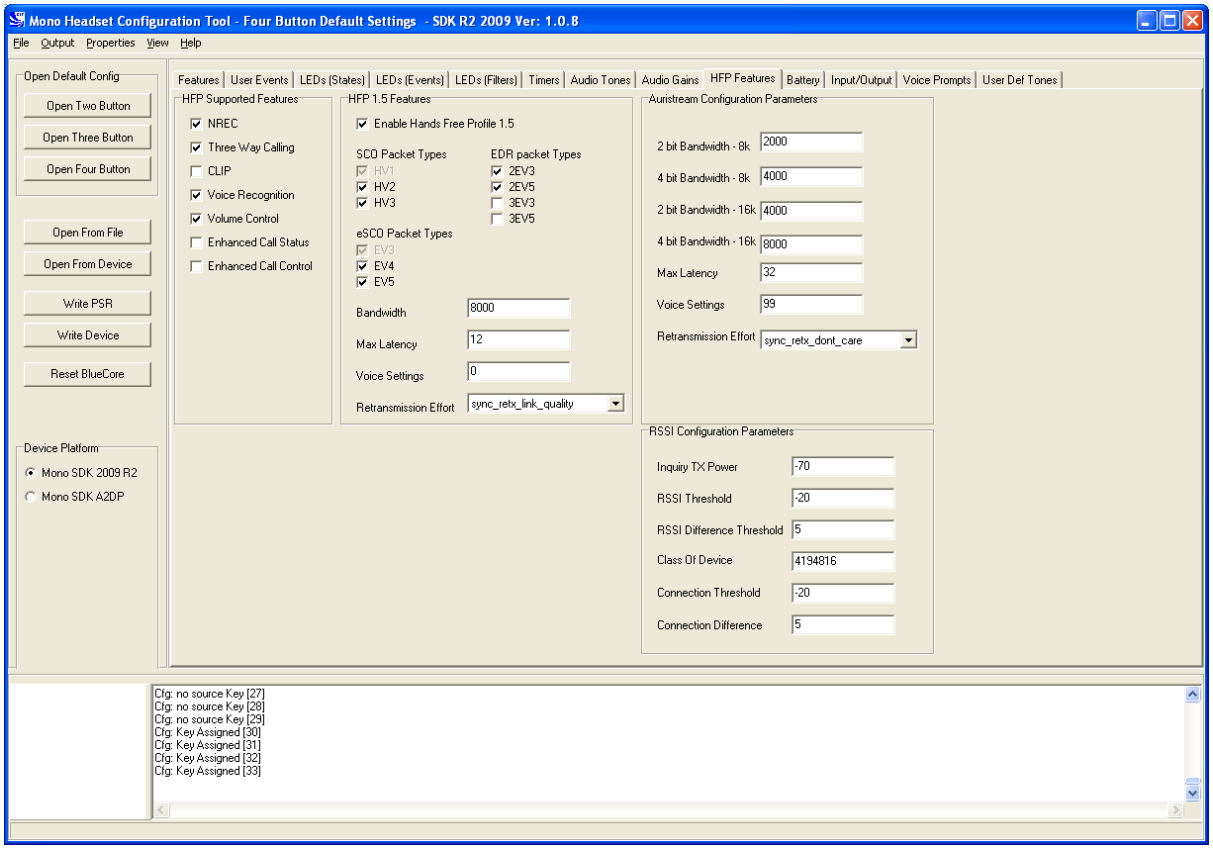
4.9 HFP FeaturesTab

The **HFP Features** tab allows the user to configure the HFP v1.0 and v1.5 settings. This creates the entry for PSKEY_USR5.



See the appropriate *Headset Configuration PS Key Bit Fields* document.

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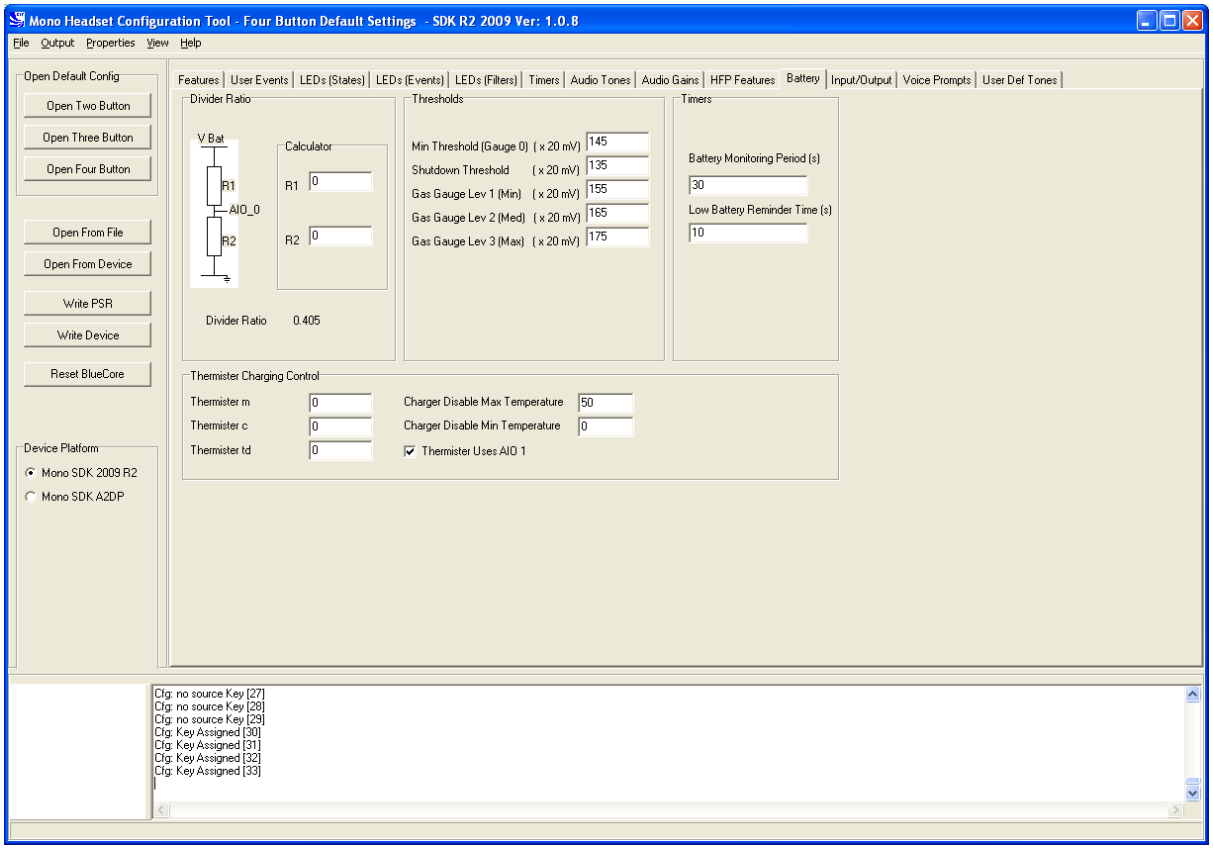
4.10 Battery Tab

The **Battery** tab allows the user to configure the battery voltage monitoring settings. This creates the entry for PSKEY_USR0.


Mono Headset Configuration Tool - Four Button Default Settings - SDK R2 2009 Ver: 1.0.8
File Output Properties View Help
Open Default Config
Open Two Button
Open Three Button
Open Four Button
Open From File
Open From Device
Write PSR
Write Device
Reset BlueCore
Device Platform
Mono SDK 2009 R2
Mono SDK A2DP
Features User Events LEDs (States) LEDs (Events) LEDs (Filters) Timers Audio Tones Audio Gains HFP Features Battery Input/Output Voice Prompts User Def Tones
Divider Ratio
V Bat
R1
AIO_0
R2
Calculator
R1 0
R2 0
Divider Ratio 0.405
Thresholds
Min Threshold (Gauge 0) (x 20 mV) 145
Shutdown Threshold (x 20 mV) 135
Gas Gauge Lev 1 (Min) (x 20 mV) 155
Gas Gauge Lev 2 (Med) (x 20 mV) 165
Gas Gauge Lev 3 (Max) (x 20 mV) 175
Timers
Battery Monitoring Period (s)
30
Low Battery Reminder Time (s)
10
Thermister Charging Control
Thermister m 0
Thermister c 0
Thermister td 0
Charger Disable Max Temperature 50
Charger Disable Min Temperature 0
Thermister Uses AIO 1
Cfg: no source Key [27]
Cfg: no source Key [28]
Cfg: no source Key [29]
Cfg: Key Assigned [30]
Cfg: Key Assigned [31]
Cfg: Key Assigned [32]
Cfg: Key Assigned [33]

See the appropriate *Headset Configuration PS Key Bit Fields* document.

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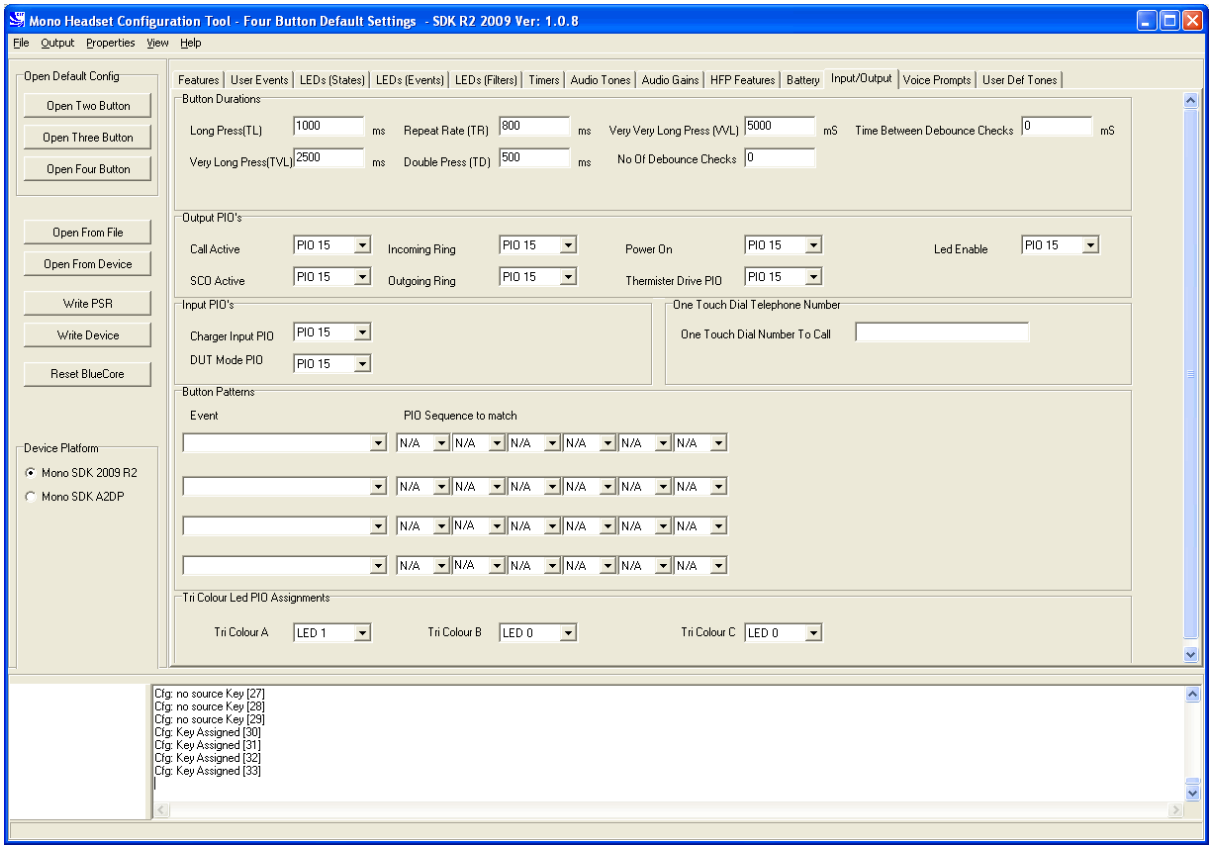
4.11 Input/Output Tab

The **Input/Output** tab allows the user to:

- Configure the input and output PIO assignments as well as the button duration times.
- Configure the pattern matching settings.
- Set a pattern of button presses to trigger a particular event, for example to enter test mode.
- Configure the Tri-colour LEDs with the ability to drive two LEDs at the same time to provide a different colour of LED.

The options and values selected in this window create the entries for PSKEY_USR1, PSKEY_USR2 and PSKEY_USR7.


Mono Headset Configuration Tool - Four Button Default Settings - SDK R2 2009 Ver: 1.0.8
File Output Properties View Help
Open Default Config
Open Two Button
Open Three Button
Open Four Button
Open From File
Open From Device
Write PSR
Write Device
Reset BlueCore
Device Platform
Mono SDK 2009 R2
Mono SDK A2DP
Features User Events LEDs (States) LEDs (Events) LEDs (Filters) Timers Audio Tones Audio Gains HFP Features Battery Input/Output Voice Prompts User Def Tones
Button Durations
Long Press(TL) 1000 ms
Repeat Rate (TR) 800 ms
Very Very Long Press (VVL) 5000 mS
Time Between Debounce Checks 0 mS
Very Long Press(TVL) 2500 ms
Double Press (TD) 500 ms
No Of Debounce Checks 0
Output PIO's
Call Active PIO 15
Incoming Ring PIO 15
Power On PIO 15
Led Enable PIO 15
SCO Active PIO 15
Outgoing Ring PIO 15
Thermister Drive PIO PIO 15
Input PIO's
Charger Input PIO PIO 15
DUT Mode PIO PIO 15
One Touch Dial Telephone Number
One Touch Dial Number To Call
Button Patterns
Event
PIO Sequence to match
Tri Colour Led PIO Assignments
Tri Colour A LED 1
Tri Colour B LED 0
Tri Colour C LED 0
Cfg: no source Key [27]
Cfg: no source Key [28]
Cfg: no source Key [29]
Cfg: Key Assigned [30]
Cfg: Key Assigned [31]
Cfg: Key Assigned [32]
Cfg: Key Assigned [33]

See the appropriate *Headset Configuration PS Key Bit Fields* document.

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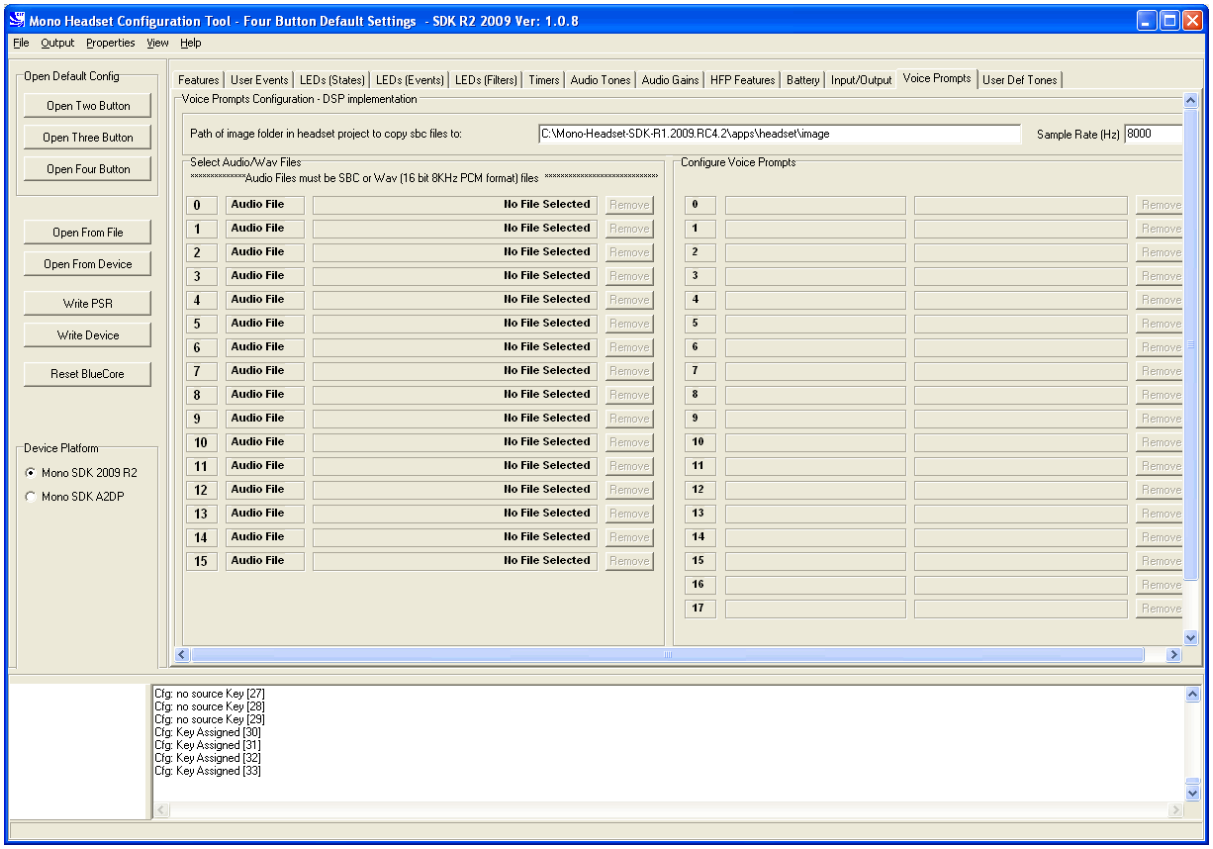
4.12 Voice Prompts Tab

SDK Headsets can be configured to use SBC encoded voice prompts.

4.12.1 Using the Voice Prompts Tab

The voice prompts are stored in flash and a need to be included with the headset image prior to building/burning the headset image.

The configuration tool can automate this process by specifying the path of the headset image folder prior to creating the SBC voice prompts. When built the SBC voice prompts are then copied to the appropriate image folder.


Mono Headset Configuration Tool - Four Button Default Settings - SDK R2 2009 Ver: 1.0.8
File Output Properties View Help
Open Default Config
Open Two Button
Open Three Button
Open Four Button
Open From File
Open From Device
Write PSR
Write Device
Reset BlueCore
Device Platform
Mono SDK 2009 R2
Mono SDK A2DP
Features User Events LEDs (States) LEDs (Events) LEDs (Filters) Timers Audio Tones Audio Gains HFP Features Battery Input/Output Voice Prompts User Def Tones
Voice Prompts Configuration - DSP implementation
Path of image folder in headset project to copy sbc files to:
C:\Mono-Headset-SDK-R1.2009.RC4.2\apps\headset\image
Sample Rate (Hz) 8000
Select Audio/Wav Files
Audio Files must be SBC or Wav (16 bit 8KHz PCM format) files
Configure Voice Prompts
Audio File
No File Selected
Remove
Cfg: no source Key [27]
Cfg: no source Key [28]
Cfg: no source Key [29]
Cfg: Key Assigned [30]
Cfg: Key Assigned [31]
Cfg: Key Assigned [32]
Cfg: Key Assigned [33]

The voice prompt files are selected as follows:

1. Select the required voice prompt audio samples in the left-hand pane, ensuring the files chosen are of the correct format. The format is checked when the configuration is downloaded.

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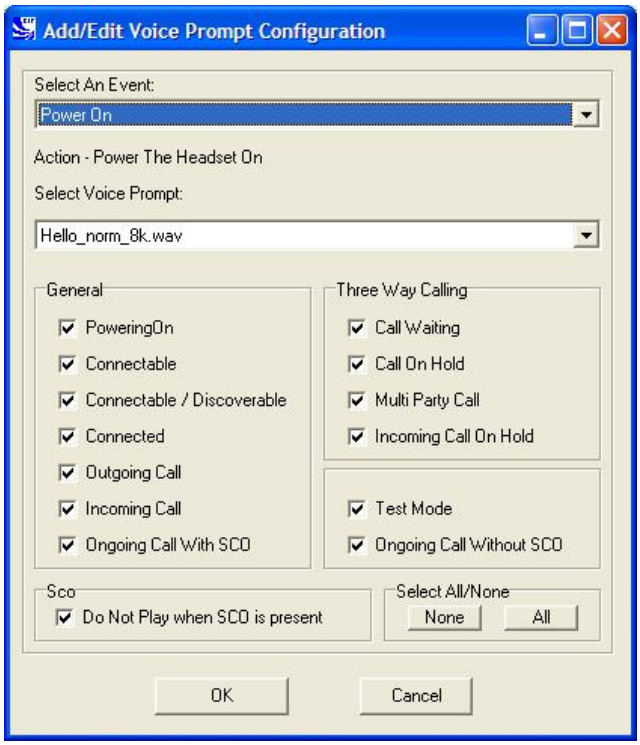
2. Set the required Headset Events to trigger each voice prompt number.

   The voice prompts are selected by their file name and associated with a Headset Event, e.g. Power On, in the right-hand pane. To do this:

   2.1. Click on the required entry in the right-hand pane. An **Add/Edit Voice Prompt** window appears.



3. When all required audio `.wav` or SBC files have been selected, click the **Create SBC Voice Prompts** button.

Note:

Any non-SBC formatted audio files are converted to SBC format and then copied to the specified image folder.

It is also possible to change the SBC file sample rate from its default of 8KHz for an improved audio quality, however a higher sample rate results in much larger SBC file size.

When the SBC files have been copied to the headset code image folder and an image created and burned to the BlueCore device the Configuration Tool can be used to write the voice prompt configuration event data to the Headset.

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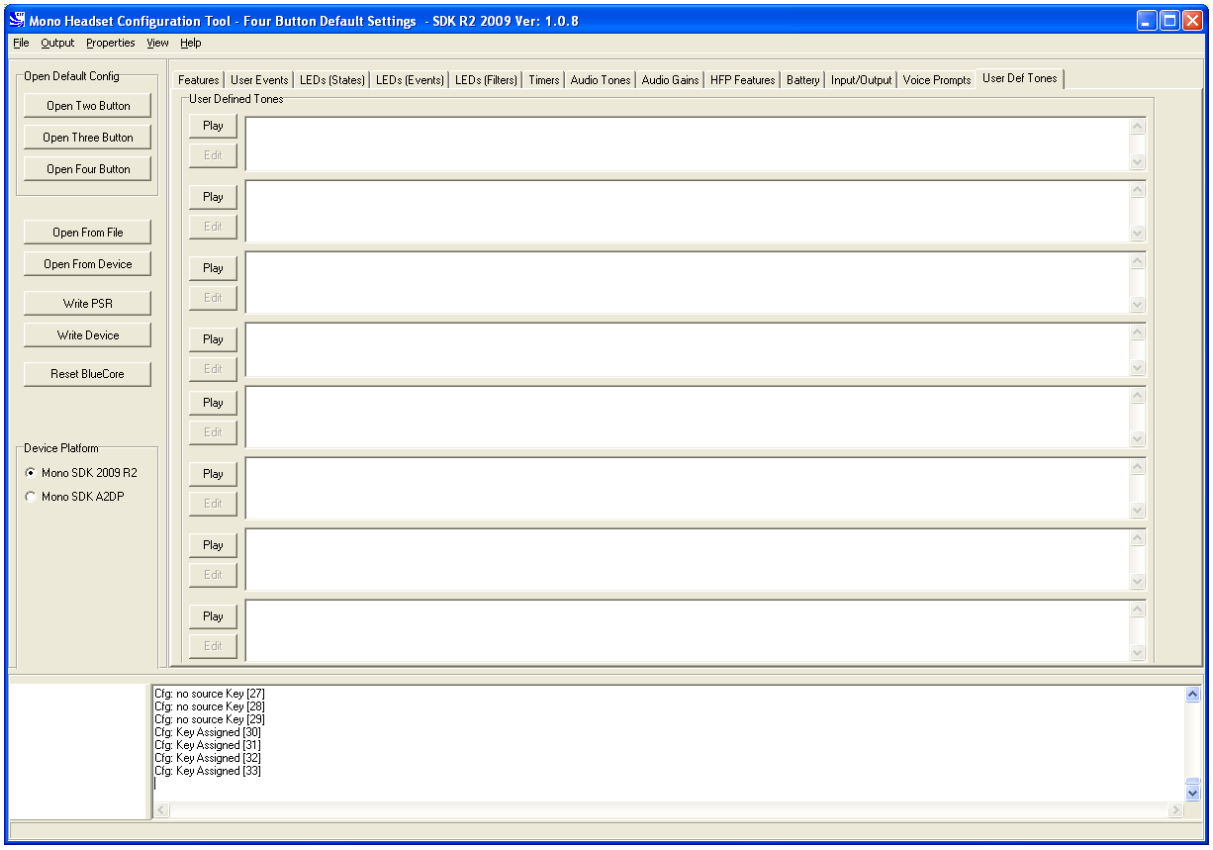
4.13 User Defined Tones Tab

Up to 8 User Defined Tones can be defined in the Configuration Tool. The number and size of the configured User Defined Tones are held in PSKEY_USER9. The Tone definitions and their offsets in PSKEY_USER19.

Note:

Tones are defined in audio note notation, see the *Headset SDK Configuration PS Key Bit Fields* document for the appropriate SDK.


Mono Headset Configuration Tool - Four Button Default Settings - SDK R2 2009 Ver: 1.0.8
File Output Properties View Help
Open Default Config
Open Two Button
Open Three Button
Open Four Button
Open From File
Open From Device
Write PSR
Write Device
Reset BlueCore
Device Platform
Mono SDK 2009 R2
Mono SDK A2DP
Features User Events LEDs (States) LEDs (Events) LEDs (Filters) Timers Audio Tones Audio Gains HFP Features Battery Input/Output Voice Prompts User Def Tones
User Defined Tones
Play
Edit
Cfg: no source Key [27]
Cfg: no source Key [28]
Cfg: no source Key [29]
Cfg: Key Assigned [30]
Cfg: Key Assigned [31]
Cfg: Key Assigned [32]
Cfg: Key Assigned [33]

The **User Defined Tones** tab allows the entry of custom tones data in one of two ways, using the built in tone editor function or entering tones as raw hex values, there is a **Play** button that plays the tone on the PC.

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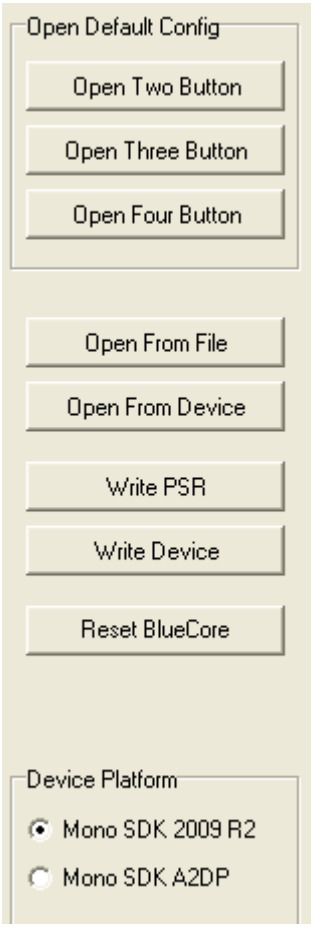
4.14 Buttons



The software has the most commonly used functions assigned to large buttons on the left of the screen, from here the user can select the **Default Config** buttons which provide the user with a basic setup for a 2, 3 or 4 button headset, this configuration is different according to the Device Platform selected.

The **Open From Device** and **Write Device** buttons attempt to write directly or read from the storage medium on the Headset itself using the previously configured transport.

If a device read or write fails a warning message box is displayed that the user must acknowledge before anything other actions can be performed.

In the case of a successful read or write to a device the button caption changes and shows the current state, the user does not have to acknowledge anything if the action succeeds. A successful read or write is accompanied by a beep.

Open From File and **Write PSR** operations follow the same rules as above.

Note:

When a **Write Device** is carried out the Headset must be reset for the new configuration to be applied. This can be done by clicking the **Reset BlueCore** button.

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5 Document References

Document	Reference
Assigned Numbers	Documented on www.bluetooth.org website
Bluetooth Specification v2.1 + EDR	Core Package, 26 July 2007
Mono Headset SDK 2010 R1Configuration PS Key Bit Fields	CS-207300-AN
PSTool User Guide	CS-101505-UG
RSSI Inquiry	CS-127323-AN
Voice Prompts	CS-127182-AN

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Terms and Definitions

ADPCM	Adaptive Differential Pulse Code Modulation
AG	Audio Gateway
BCSP	BlueCore Serial Protocol
BlueCore®	Group term for CSR's range of Bluetooth wireless technology ICs
Bluetooth SIG	Bluetooth Special Interest Group
Bluetooth®	Set of technologies providing audio and data transfer over short-range radio connections
CSR	Cambridge Silicon Radio
DUT	Device Under Test
e.g.	*exempli gratia*, for example
EDR	Enhanced Data Rate
EEPROM	Electrically Erasable Programmable Read Only Memory
eSCO	extended Synchronous Connection-Oriented
etc	*et cetera*, and the rest, and so forth
HFP	Handsfree Profile
HMI	Human Machine Interface
HSP	Headset Profile
i.e.	*Id est*, that is
I^2C	Inter-Integrated Circuit
IC	Integrated Circuit
LDO	Low Drop Out
LED	Light Emitting Diode
NiMH	Nickel Metal Hydride
PDL	Paired Device List
PIO	Parallel Input Output
PS	Persistent Store
ROM	Read Only Memory
RSSI	Received Signal Strength Indication
SCO	Synchronous Connection-Oriented
SLC	Service Level Connection
SMPS	Switch Mode Power Supply
SPI	Serial Peripheral Interface
TTS	Text to Speech
TWC	Three Way Calling
Tx	Transmit
UI	User Interface
USB	Universal Serial Bus
VGS	Volume Gain Setting

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